King County
Department of Natural Resources and Parks
Wastewater Treatment Division

City of Carnation

Carnation Wastewater Treatment Facility

Where will the treated water go?
A fact sheet on discharge alternatives

The Carnation Wastewater Treatment Facility will treat the City of Carnation's wastewater to such a high level that it will be safe to use for irrigation and other non-potable (not-for-drinking) water uses. Our job is to find a beneficial use for this water resource. To discharge into the Snoqualmie River or on to the ground for recharging groundwater, the state requires that the treated water meet stringent water quality standards. The plant will meet these standards by providing advanced treatment (also called tertiary treatment). With this amount of treatment, the water can be used as reclaimed water for irrigating farms and parks, or it can be used to enhance wetlands to provide fish and wildlife habitat.

This fact sheet focuses on the discharge alternatives being considered for the Carnation Wastewater Treatment Facility. The alternatives being studied in depth as part of the Draft Environmental Impact Statement (EIS) include the following:

- River discharge through an outfall to the Snoqualmie River
- Wetland discharge to create or enhance existing wetlands
- Upland discharge (also called groundwater infiltration).

The project team had also looked at opportunities to use the reclaimed water for irrigation during summer months, but found opportunities were limited, costly and only seasonal.

The plant will use advanced treatment to meet the high water quality standards required to discharge into a wetland, groundwater or the Snoqualmie River. The facility will need a National Pollutant Discharge Elimination System permit, which contains strict limits on what can be discharged. The limits are set so the receiving water is not degraded from its current condition and maintains any beneficial uses it now provides. Ongoing monitoring and reporting is required to make sure permit terms are met.

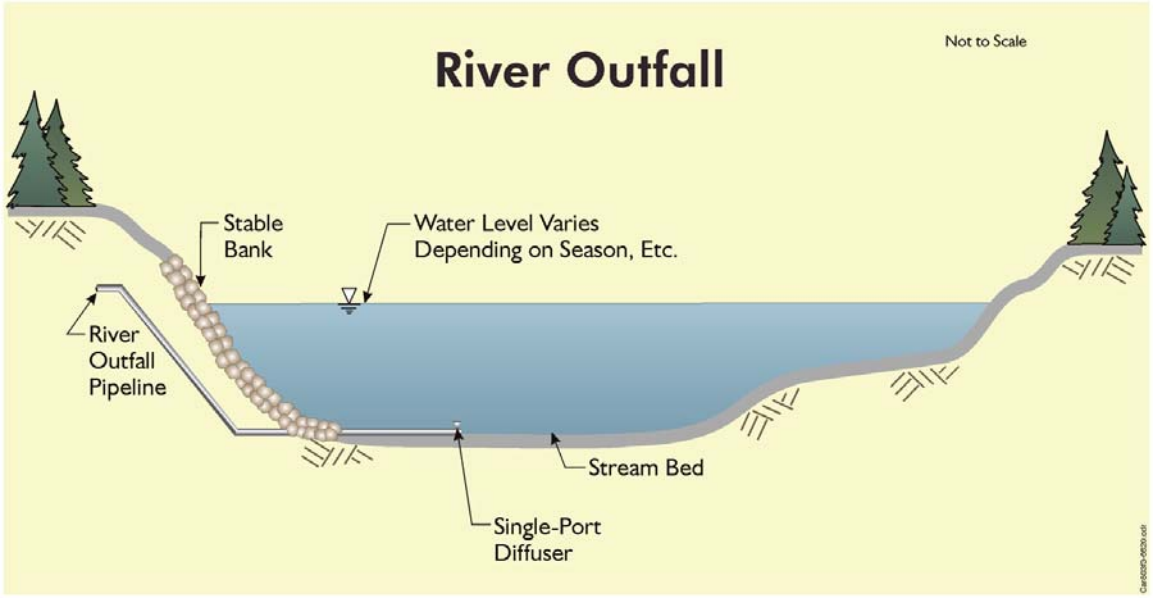
All of the treated water, regardless of the discharge alternative chosen, will meet or exceed Class A reclaimed water standards of Washington state. That standard means the reclaimed water has nearly unrestricted uses, including human contact, but is not considered safe for drinking.

Following is an overview of the river discharge, wetland discharge and upland discharge alternatives evaluated in the Draft EIS.

River discharge

A river outfall discharges the highly treated water to the river through a subsurface diffuser--a pipe with one or more holes below the water surface. An eight to ten-inch pipeline would lie on the river bottom and extend about 15 feet into the river. The discharged water would have to meet or exceed stringent water quality standards and federal Endangered Species Act requirements, and protect beneficial uses such as recreation and wildlife. Discharge to the Snoqualmie River may be the most cost-effective alternative for the Carnation facility.

A river outfall must be placed in an area with a historically stable channel. The river bottom cannot have shifting gravel beds that could cover or damage the diffuser. The river must have acceptable depth and speed to dilute the highly treated water. King County evaluated locations in and near Carnation and identified three potential outfall locations that met the criteria. Of these three, the location at Carnation Farm Road Bridge has been evaluated in the Draft Environmental Impact Statement.



To help make the decision about a river outfall, King County began a yearlong study in February 2003 of the water quality at various points along the river. Quarterly samples are being taken. Preliminary results are available.

In coordination with the state Department of Ecology, water quality modeling is under way to determine necessary levels of treatment to meet critical water quality standards in the Snoqualmie River. This modeling will give baseline information and enable experts to evaluate the concentration and distribution of potential contaminants of concern.

In addition, several reports on habitat conditions for salmon and other aquatic wildlife have been completed by the University of Washington, the Tulalip Tribe and King County. A comprehensive habitat inventory is under way to evaluate habitat conditions and potential opportunities for habitat protection and restoration actions. The Carnation

wastewater treatment facility team is staying in touch with these efforts in case our discharge can help provide further habitat opportunities such as the wetland enhancement option discussed below.

Summary

An outfall to a river or other body of water is a proven discharge method. If this alternative is selected for Carnation, it will follow treatment to standards that eliminate adverse impacts to public health and the environment. King County would monitor the treated water daily to verify it meets high water quality standards.

Habitat enhancement through wetland discharge

Highly treated water from the treatment plant could be used to create and enhance wetlands in state Department of Fish and Wildlife's Stillwater Wildlife Area, located just north of Carnation. The southern boundary of the refuge is next to Chinook Bend on the Snoqualmie River. The area is now managed for wildlife habitat, particularly for waterfowl. Enhancing a wetland in this area would be consistent with improving habitat for birds and waterfowl.

Two options are being considered within this alternative. Under the **basic option**, several wetlands would be created or enhanced. This could consist of introducing highly treated water to existing low areas in former agricultural fields or existing wetlands, along with native plantings. The **expanded option** would add large woody debris clusters on one or more streams to keep water in the existing wetlands for a longer period of time and create pools for fish and wildlife habitat.

Summary

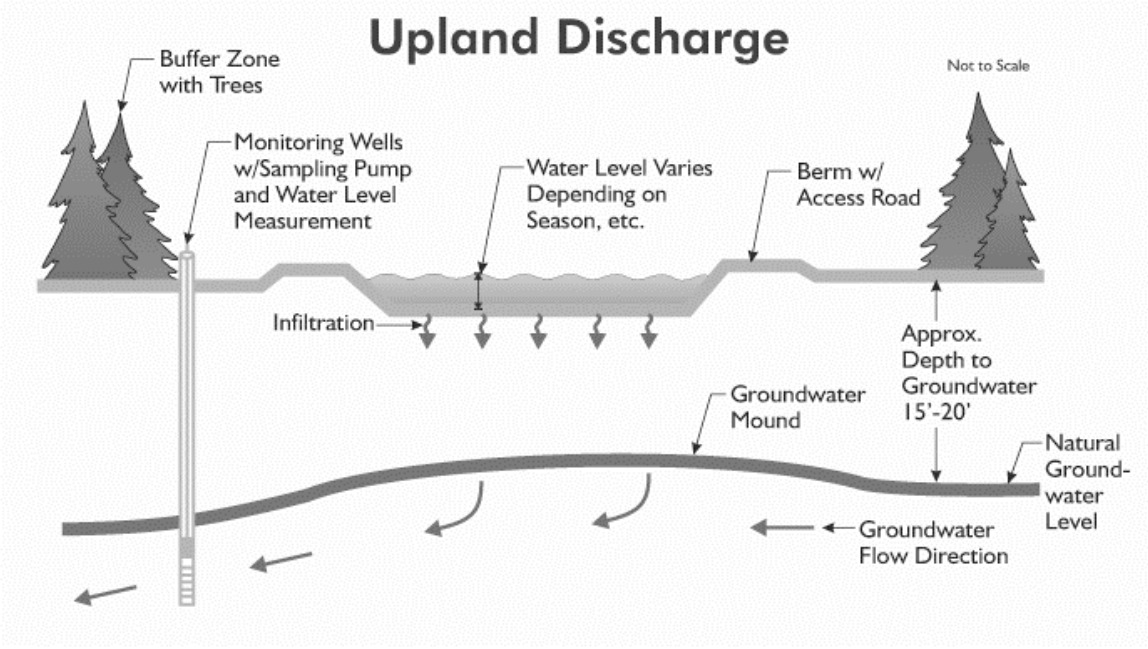
Discharge to create or enhance a wetland is done successfully in many communities and can create a real amenity. If this alternative is selected for Carnation, it will follow treatment to standards that eliminate adverse impacts to public health and the environment. The treated water would be monitored daily to verify it meets high water quality standards.

Upland discharge

Upland discharge, also called groundwater infiltration, involves discharging highly treated water to constructed basins where it would filter through the ground, eventually recharging the groundwater. Treatment would need to meet stringent water quality standards. If chosen, the upland discharge site would occupy up to 10 acres within the 240-acre upland discharge study area southeast of Carnation. Up to eight half-acre infiltration basins would be built and used sequentially.

Below are several examples of several projects in Washington state using upland discharge. These three plants were built as demonstration projects as part of the state Department of Ecology's overall reclaimed water demonstration project. Like the proposed Carnation wastewater treatment plant, these projects produce highly treated water that meets reclaimed water standards.

- Ephrata has a 1.12-mgd Class A reclaimed-water facility where the treated water is discharged to groundwater through four infiltration basins.
- Yelm has a 1.0-mgd Class A reclaimed-water facility where the treated water is discharged to Cochran Memorial Park for groundwater recharge.
- Royal City has a 0.25-mgd Class A reclaimed-water facility where treated water is used for site irrigation and groundwater recharge through three infiltration basins.



Summary

A 1984 publication produced by the U.S. Environmental Protection Agency said 320 facilities in the United States use upland infiltration of treated wastewater. Today that number is much greater. In today's more carefully regulated environment, wastewater is treated to a very high standard. Upland disposal is a proven method of wastewater

discharge that, if selected for Carnation, would follow treatment to the highest standards to eliminate adverse impacts to public health and the environment. As with river or wetland discharge, King County would monitor the treated water daily to verify it meets high water quality standards.

Water reuse

Reclaimed water is treated to such a high level that it can be used safely for non-drinking water purposes like irrigation. Reclaimed water would be used within the treatment plant for internal plant processes. Other potential reclaimed water uses, such as irrigation of local farmland and parks in the area, have been determined to be too costly at this time.

Where can I get more information or let you know my opinion?

The Draft Environmental Impact Statement comment period for this project will run from June 28 to July 27, 2004. Comments submitted during this period will be addressed in the Carnation Wastewater Treatment Facility Final Environmental Impact Statement which is due to be released fall of 2004.

The City of Carnation and King County's Wastewater Treatment Division are working together to provide public information and involvement opportunities throughout the siting and development process for the wastewater treatment system. For a schedule of upcoming events, check the Web site or call the project number listed below.

To give us your opinion, or to get further information on the treatment facility, contact the King County Carnation Wastewater Treatment Plant Project Information Line at **206-263-5212** or **toll-free at 1-800-325-6165, ext. 35212**; e-mail CarnationWWTP@metrokc.gov; or check the Web site at http://dnr.metrokc.gov/WTD/carnation/

For information on the sewage collection system, call Bill Brandon, City Manager, for the City of Carnation, at 425-333-4192 or check Carnation's Web site at www.ci.carnation.wa.us.

To get this information in alternative formats, call 206-296-8361 or 711 (TTY)